**Abstract**

An arrangement is provided in a fuel cell power plant (10) for dispensing (58 74,60, 64) a liquid medium, such as water (66), into a process oxidant (air) stream (53) that flows through one gas channel (42) in an energy recovery device (ERD) (32). An exhaust gas stream (48) containing heat and moisture from the fuel cell (12) flows through another channel (44) in the ERD. An enthalpy exchange barrier (46) separates the one and the other gas channels, but allows mass and/or heat transfer therebetween. The water is injected into the air stream (53) in a controlled (70, 74) amount, and perhaps temperature (78), in response to sensed parameters (80, 84, 90) of the power plant, including the process air stream, to adjust one or more conditions in the power plant. Controlling ERD dryness, providing a defrost capability for the ERD, and/or preventing excessive water accumulation in the system are several of the conditions controlled.